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- (71) Applicant (*for all designated States except US*): **BRITISH TELECOMMUNICATIONS PUBLIC LIMITED COMPANY [GB/GB]; 81 Newgate Street, London EC1A 7AJ (GB).** (88) Date of publication of the international search report: **11 December 2003**
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- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **METHOD OF COMBINATORIAL MULTIMODAL OPTIMISATION**

(57) Abstract: A method of combinatorial multimodal optimisation uses a genetic algorithm to find simultaneous global optimal solutions to combinatorial problems. Each individual within the population is associated not only with a fitness value but with a fitness vector, using which the persistence of all of the best individuals into the next generation can be guaranteed. Phenotype as well as genotype analysis is an integral part of the method.

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## INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 G06N3/12

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 G06N G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 02 03716 A (CORNE DAVID WOLFE ;KNOWLES JOSHUA DAMIAN (GB); BRITISH TELECOMM (G) 10 January 2002 (2002-01-10) abstract; claim 1; figures 3S,3B -----	1

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0203716 A	10-01-2002	AU 7027900 A	14-01-2002
		EP 1308055 A1	07-05-2003
		WO 0203716 A1	10-01-2002